Division 11

SECTION 11110

COMMERCIAL LAUNDRY EQUIPMENT

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Central laundry washer-extractors and dryers

B. Housing units heavy-duty commercial washing machines and dryers

1.02 RELATED SECTIONS

A. Disision 15 Mechanical

B. Division 16 Electrical

1.03 SUBMITTALS

A. Submittals
   1. Submit under provisions of Section 01300.
   2. Shop Drawings: Indicate rough-in requirements
   3. Product Data: Provide manufacturer's model number(s), data describing design characteristics,specifications, installation instructions
   4. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.04 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum five years documented experience.

1.05 COORDINATION

A. Coordinate work under provisions of Section 01040.

B. Coordinate the Work with installation of plumbing, ventilation and electrical work.

1.06 WARRANTY

A. Provide manufacturer's standard warranties for the specific product(s).

PART 2 - PRODUCTS

2.01 MATERIALS

A. Provide products from one of the following manufacturers or, subject to Owner's Project Manager approval, equivalent products meeting the acceptable quality standard of the named manufacturers.
   1. Central Laundry tumbler dryers shall be gas unless stipulated otherwise by the Owner.

B. Central Laundry Washer-Extractor:
   1. Milnor 30022 X8J, 55-60 lb.

2. Speed Queen SC 60, 60 lb.
3. UniMac UX 55, 55 lb.

C. Central Laundry Tumbler Dryer:
1. Milnor M75 75 lb. dryer
2. Speed Queen 75 lb. dryer
3. UniMac 75 lb. tumbler dryer

D. Housing Unit Heavy Duty Washing Machine
1. 12-lb. front-load type
2. Products by Milnor, Speed Queen, UniMac or approved equal

E. Housing Unit Heavy Duty Dryer
1. 12-lb. front-load electric dryer
2. Products by Milnor, Speed Queen, UniMac or approved equal

2.02 ACCESSORIES

A. Provide all mounting and attachment devices required for a complete installation, including dryer vent tubing.

2.03 FINISHES

A. Manufacturer's standard commercial finish, color to be selected by Owner from manufacturer's standard colors

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify site conditions under provisions of Section 01040.

B. Verify that prepared pad or floor surface is ready to receive work and that all required infrastructure utilities are in place and compatible with equipment connections.

3.02 INSTALLATION

A. Install in accordance with manufacturer's written instructions.

B. Test equipment in accordance with manufacturer's written instructions to insure proper operation and to satisfaction of Owner's Project Manager.

3.03 CLEANING

A. Clean work under provisions of 01700.

B. Clean surfaces and components.

END OF SECTION

SECTION 11190

DETENTION EQUIPMENT

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. Limits and scope of work under the Detention Equipment Section shall be defined in these specifications. The Design-Builder shall correspondingly indicate locations and types of items and installations on the drawings.

B. Provide materials, labor, equipment and services necessary to furnish, deliver and install work of this Section complete.

1.02 DESCRIPTION

A. Scope and Responsibility:
1. Detention System Contracting Firm (DSCF).
   a. A single Detention System Contracting Firm (DSCF) listed herein as pre-approved or having met all requirements listed hereafter in Section 01300 and having been approved by Addendum, shall assume control and accountability for furnishing and installing Detention Equipment as hereafter specified.
   b. The DSCF shall be responsible for the integration and interfacing of the products and systems specified in this Section and in accordance with shop drawings and submittal's which have been approved by the Design-Builder and the Owner's Project Manager.
   c. To assure full compliance and allow proper review and analyzation of bids, the Design-Builder shall list his DSCF with his proposal submittal. Only one DSCF shall be listed by the Design-Builder. Listing of more than one DSCF may disqualify the Design-Builder's bid.
   d. All DSCF's must base their bid on the approved products listed herein or by Addendum.
   e. The DSCF shall employ a full-time superintendent to supervise the work of this section. The superintendent's sole responsibility shall be to supervise and coordinate the work of this section. The superintendent shall be at the site at all times when the work of this section is being performed. The supervision cannot be performed by a subcontractor of the DSCF.
2. Furnish Only for Installation by Design-Builder:
   a. Security Hollow Metal Frames, Sidelights, Control Room Framing, Metal and Glass Framing, Metal Infill Panels.
   b. Security Borrowed Lights and Vision Panels
   c. Detention Windows Sub-Frames - Steel
   d. Security Access Frames and Doors
   e. Embeds Required for Attachment of Security Equipment
3. Furnish and Install by DSCF.
   a. Security Hollow Metal Doors
   b. Security Hardware for Security and Standard Hollow Metal Doors.
   c. Security Locking Devices and Operators
   d. Provide wiring terminations at locking devices.
   d. Security glass and Glazing
   e. Security Furnishings and Accessories
   e. Steel Grating and Plate
4. Furnish by DSCF and install by DSCF and Electrical Contractor (Div 16).
   a. DSCF shall provide connector for each remote lock/unlocking door device that will have wiring on each side for terminating control wiring.

b. Electrical Contractor (Div 16) shall terminate field wiring to one end of connector.
c. DSCF shall terminate to other end of connector installing and adjusting lock hardware.

C. Design-Builder
1. Related Work Furnish and Installed by Others:
a. Non-security hollow metal doors, frames, partitions and sidelights.
b. Furnishing and installing hardware for non-security doors.
c. Casework and Millwork.
d. Labor for receiving, unloading, distributing, setting and installation of all security related embedded items. This includes bars, plates, angles, access frames and doors, security frames and security sidelights, and miscellaneous security frames required by this Division.
e. Access panels not specified herein.
f. Security grilles at wall and mechanical openings and ducts.
f. Miscellaneous steel embedded anchoring plates, angles, channels, etc.
g. Exterior poles and bases for mounting closed circuit television cameras.
h. Exterior poles and bases for mounting intercom staff stations.
i. Field Grouting.
j. Detention Caulking and Sealants.
k. Fire Safeing.
l. Flashing and counter flashing.
m. Field touch-up of prime coat.
n. Finish painting (except where specified).
o. Final cleaning.

D. Electrical Subcontractor (Division 16)
1. Electrical work, except as specified herein.
2. All 110VAC ~ 120VAC branch circuits including conduit, wiring and connections from power distribution panels to terminal strips and/or receptacles in electronic control panels and/or at electronic system devices. All 230 or 480 VAC at three phase distribution circuits, including conduit, wiring and connections from power distribution panels to pneumatic compressor(s) motor control center(s) where terminals shall be provided for termination. All distribution and branch circuits described above shall be connected to the emergency power source.

1.03 PRE-QUALIFICATION REQUIREMENTS

A. The following DSCF's are pre-approved to perform the work of this Section.
1. CCC Group, Inc., San Antonio, Texas
2. Detention Equipment Service, Inc./Architectural Hardware Co., Wilmington, DE
3. Grayco Detention Equipment, Inc., Conway, SC
4. McGregor Industries, Inc., Dunmore, PA.
5. Norment Industries, Montgomery, AL
6. Southern Steel Co., San Antonio, TX
7. U.S. Security, Montgomery, AL
8. Willo Products Company, Inc., Decatur, Alabama

Note: Approval of a firm as a DSCF does not relieve that DSCF from furnishing all materials from the manufacturers as herein specified.

B. Qualifications of Detention System Contracting Firm: Any DSCF who intends to submit a bid on this Section of the Specifications shall submit the following qualification data to the Design-Builder and Owner's Project Manager in writing fourteen (10) days prior to bid date and, if approved, shall be acknowledged by Addendum prior to bid date. Verbal approval will not satisfy this requirement. All DSCF's except those pre-approved, shall submit a completed

AIA305 form and all information exactly as herein requested or will not be allowed to submit a bid. Grounds for disqualification shall exist if it is proven that the information submitted is inaccurate or, in the opinion of the Design-Builder/Owner's Project Manager does not satisfy the qualification requirements.

1. Evidence that the DSCF firm has a minimum of five (5) years experience in successfully completing projects of equal scope and magnitude with products as herein specified. This evidence shall consist of a list of ten (10) projects that have been complete and operational for a minimum of five (5) years.
2. Notarized original letters from owners of previous projects to indicate that the DSCF has a minimum of four (4) years experience, has successfully completed projects of equal magnitude and has utilized pneumatic security locks and sliding devices, as specified. Include a list of three (3) projects which have been completed and operational for a minimum of one (1) year.
3. Optional Submittal: In the event of a DSCF desiring approval to bid this section and cannot meet the above qualification, the DSCF shall submit and comply with one of the following:
    a. Submit a notarized original letter from the lock manufacturer stating that the firm is a certified, factory-trained installer of the complete line of pneumatic products, including the associated air distribution equipment and have at least one (1) project completed which utilized pneumatic locking systems. Letter shall include the name or names of the firm's individual employees who have been certified by the lock manufacturer and state that they will be assigned to this project and be on-site, full-time during the entire installation and conduct the owner training sessions as specified.
    b. Submit a notarized original letter certifying that the DSCF will have on-site a full-time technician from the pneumatic lock manufacturer throughout the installation of the pneumatic locking system. The factory technician shall oversee the complete installation, adjustments and testing of the compressors, filters, dryers, air lines, locks and sliding devices. The factory technician shall also conduct the owner training sessions specified.
    c. In addition to a or b above, qualifications shall include evidence that the DSCF has a minimum of ten (10) years experience in successfully completing projects of equal scope and magnitude. This evidence shall consist of a list of five (5) projects that have been complete and operational for a minimum of five (5) years (pneumatic detention type projects).
4. For each facility list: Name and location of installation, date of occupancy by Owner, Owner's representative to contact and telephone number, Construction Manager or General Contractor, and Architect.
5. Provide independently audited financial statement showing a net worth of $5,000,000 (consolidated/parent).
6. All DSCFs, including those listed, shall submit to the Design-Builder at or prior to bid time a statement letter from a Surety Company (that has an AM best "A15" rating) stating that a 100% Payment and Performance Bond will be supplied if selected as the successful Detention System Contractor (DSCF)."
7. Submit to the Design-Builder/Owner's Project Manager a letter from the lock manufacturer stating that this firm is a factory-trained fully authorized distributor and installer of their complete line of product.
8. Submit a statement letter from the Surety Company stating that a 100% Payment and Performance Bond may be supplied if selected as the successful Detention System Contracting Firm (DSCF).
9. Any firm intending to submit a proposal for this work must examine the existing conditions and equipment. Evidence of compliance of this requirement must be submitted along with the proposal. This evidence consists of a signature of a qualified representative of the Owner attesting to the date and time of the inspection. DSCF shall comply with the requirements outlined in Division 1 of the bid documents.

C. All materials and labor specified in this Section of the Specifications shall be furnished by a single qualified DSCF who shall assume responsibility for the detailing, coordinating, erecting (where applicable), performance and warranty of his work, in accordance with this specification section.

D. Qualifications Manufacturers: Throughout the specifications and drawings, types of materials maybe approved and specified by the manufacturer's name and catalog number in order to establish standards of quality and performance. If the bidder elects to substitute, he must request the Owner's Project Manager's approval in writing fourteen (14) days prior to bid date, and then must receive written approval by Addendum, prior to bid date. The following paragraphs outline the submittals required by the Design-Builder/Owner's Project Manager for review in order to consider approval of a substitute product.
   1. Electrical and Mechanical Security Locks and Locking Devices: Provide security locks and locking devices from manufacturing firms, who at present, have not less than five (5) years successful experience with and shall now be actively engaged in the design and manufacture of security locks and locking devices.
   2. Pneumatic Locks and Sliding Devices: Provide security locks and locking devices from manufacturing firms, who at present, have products with not less than three (3) years successful field experience and shall now be actively engaged in the design and manufacture of security locks and locking devices of the type required for this project. The manufacturer shall provide a notarized letter listing at least five (5) institutions for which similar products are currently in operation. For each facility, list the name and location of the installation, the owner's representative and telephone number. Additionally, provide independently audited financial statement showing a minimum net worth of $5,000,000 (consolidated/parent).
   2. Electronic Components: Provide electronic components from manufacturers who at present has not less than ten (10) years continuous successful experience in the design and manufacture of the type products required for this project.
   3. Security Hollow Metal: Security hollow metal manufacturing firms who have not been pre-qualified, shall have not less than five (5) years continuous successful experience with hollow metal and shall now be actively engaged in the manufacture of security hollow metal doors and frames of the type required for this project. Fabrication methods and product quality shall meet or exceed standards set by the Hollow Metal Manufacturers Association, (HMMA), a division of the National Association of Architectural Metal Manufacturers (NAAMM), and be tested in accordance with ASTM F 1450.
      a. Submit a statement letter from the Surety Company stating that a 100% Payment and Performance Bond will be supplied if selected as the successful Hollow Metal Manufacturer.
      b. Performance Tests: All security hollow metal door manufacturers shall submit to the Design-Builder evidence of compliance with ASTM F 1450 and HMMA 863. Test reports and documenttation shall be in accordance with ASTM F 1450.
      c. Performance Criteria for load testing shall be in accordance with applicable paragraphs of ASTM F 1450, Section 7 - "Procedures".
         1) Fire rated doors and frames shall be provided for those openings indicated in the schedule as requiring fire protection ratings. Such doors and frames shall be constructed as tested in accordance with ASTM E-152, UL-10B or NFPA-252 and labeled by a recognized testing agency having a factory inspection service.

1.04 SUBMITTALS AND SUBSTITUTIONS

A. Shop Drawings: Shop drawings on all materials and equipment of this Section shall be submitted for approval. They shall indicate item location, size, type of materials, construction, finishes, spacing of anchors and joinery details with adjacent work. The DSCF/ESS will extensively check each of the submittals under his scope of work, insuring their correctness and compatibility not only with each other, but with the contract documents.

It shall be the Design-Builder's responsibility to coordinate the DSCF's work with other trades.

B. Hollow metal drawings, the manufacturer shall indicate any specified fire rated openings that cannot be fire labeled and reasons why they cannot. If the designer furnishes the name of an approved manufacturer who can supply the fire labeled openings in question, the manufacturer shall be required to furnish the openings with fire labels at no additional cost. However, if label openings are not available as designed, the designer shall either authorize the necessary changes in opening design, hardware, glass and/or other features which will bring the openings into compliance or drop the fire labeling requirement on openings in question. Manufacturing the openings "Label Construction" without factory applied fire labels shall be unacceptable.

C. Templates: Upon receipt of the approved security hardware schedule, the DSCF shall promptly provide the hardware manufacturer's templates to the metal door manufacturer or others requiring said information.

E. Unless required otherwise in Division 1, the DSCF shall submit six (6) complete sets of documentation for approval which shall include, as a minimum, the following:
   1. Manufacturer's product cut sheets for required equipment and major components to be provided.
   2. System theory of operations that clearly define the operating parameters of all systems being supplied.
   3. A functional systems block diagram showing single-line interconnection of all integrated systems and the major components of each system and methods of integration.
   4. Conduit riser diagrams that show all required conduit, raceway, wire, air tubing, etc. for the interconnection of all systems equipment and devices. As a minimum, diagrams shall include raceway/conduit size and type, wire fill, (type and size), air tube (type and size), equipment identification and location.
   5. Schedules of all electronic operated devices and their functional attributes for all systems being supplied. The schedules shall be divided by system (i.e., locking, etc.) and shall be formatted in alphanumeric order by architectural identification number.

Note: These schedules shall not be required during the submittal process. However, they shall be prepared and used for installation purposes and shall be incorporated into the as-built/record documentation.

F. Operating/Maintenance Manuals: DSCF shall furnish three (3) copies of parts of manual for all security hardware and all security locking devices. These manuals shall include instructions for the care and operation of the systems and materials. A parts list to aid the Owner and ordering replacement parts, as well as instructions for contacting the appropriate personnel not only during the warranty period, but beyond.

G. Packing and Marking: Each lock, locking device and shipping carton furnished under this Section shall be packaged and marked according to the hardware set and/or door numbers on the approved hardware schedule. Additionally, all unique electronic devices (i.e., cameras, monitors, speakers, etc.) shall be packaged and properly marked by type.

H. Substitutions: No substitutions of equipment or material will be permitted where specific trade names or a manufacturer are listed, unless the Owner's Project Manager adds them by an addendum.
   1. Materials and products specified by name of manufacturer or brand trade name shall be the basis of the bids received, unless changed by addendum prior to the bid dates.
   2. In the event a contractor wishes to use any materials or products other than those specified, he shall make a written request to the Owner's Project Manager, naming the proposed substitution.

3. All additional costs resulting from the use of an approved substitution by the DSCF, shall be borne by the DSCF without additional expense to the Owner. Such additional costs shall include necessary modifications and alterations to structures, equipment, raceways, and furnishing of all additional materials required to affect the substitution.
4. Requests for substitutions must be received by the Owner's Project Manager, through an approved DSCF no later than 14 days prior to the bid date.

1.05 PRODUCT HANDLING, STORAGE AND DELIVERY

A. Responsibility of the Design-Builder:
1. Receive from carrier, unload and store all material which is furnished only by the DSCF and installed by others.

Note: The DSCF shall be responsible for receiving, unloading and distribution of the security glass and electronic controls.

2. Insure that all embedded items are installed plumb and true.
3. Provide temporary access openings required through walls to permit the placing of all detention equipment in the areas of the buildings where it is to be installed and provide use of hoist, cranes, elevators and lifts and/or cranes on regular time with qualified operators.
4. Protect all materials during storage on the job and after installation. All protection required while working and/or cleaning adjacent materials shall be the responsibility of the Design-Builder.
5. Provide an adequate secure, dry, lockable storage area or room for all materials specified in this Section.
6. Complete all floor finish, concrete curbs, waterproofing, and other concrete work where shown or specified in connection with the detention equipment and all plastering on or near detention equipment after detention equipment is installed.
7. Any scratches or disfigurement caused by shipping or handling are promptly cleaned and touched up with a compatible rust inhibitive primer or the shipment must be rejected at time of receiving.
8. Remove protective materials, and clean all finished surfaces using clear water and non-abrasive detergent. Any protection required to clean adjacent materials shall be the responsibility of the Design-Builder.
9. An environmentally controlled room in each building and floor shall be provided for the on-site storage of all hardware or the hardware and the electronic devices shall be shipped to the DSCF's home office where it shall be promptly inventoried and securely stored until required at the facility for installation. A notarized list indicating exactly what has been received and stored each month and it's value, shall be submitted with the Design-Builder's Monthly Pay Request. Prompt payments will be made for equipment and materials properly stored at the DSCF's home office.

1.06 WARRANTY

A. The Detention System Contracting Firm warrants materials furnished by the DSCF under this Section to be free from defects in material and workmanship for a period of one (1) year after substantial completion. Should the Design-Builder serve written notice on the DSCF during the warranty period of any such defect (for the convenience of the Design-Builder, the DSCF will accept such written notice directly from the Owner), the DSCF shall make good the defect at its own expense. The DSCF's obligation hereunder is limited to repair or replacement of defective material and in no event will the DSCF be liable for consequential, special or incidental damages.
1. Nothing in the above warranty statement shall be deemed to apply to material which has been misused, abused or neglected by the Owner, defects or damage caused by work or failure of work by others; ordinary wear and tear; or normal equipment adjustment which are within the Owner's operation and maintenance responsibility.

2. Additionally, any unauthorized modifications, repairs or tampering shall constitute termination of this warranty.

B. All security glass shall be warranted against delamination for a period of one (1) year from date of shipment.

C. Glass breakage other than breakage caused by the DSCF personnel is excluded.

D. The DSCF shall be fully reimbursed including travel expenses for service calls during the warranty period which prove to be other than work covered by the DSCF's warranty.

E. The DSCF must have full time employees trained in and devoted to the maintenance and repair of this equipment.

1.07 SPARE PARTS

A. The DSCF shall deliver all spare parts at the completion of the project. The spare parts shall be packaged and clearly marked as to content, for ease of handling by one (1) person. The DSCF shall obtain a signature from the owner's representative who received the spare parts.

B. At a minimum, the DSCF shall provide the following:
1. Six (3) sets of security tools (bits, drivers and holders) for each type and size security screw on this project.
2. Two (2) Molex pin extractor tools.
3. Twelve (12) limit switches, each size and type used inside the locks and devices on this project.
4. Twelve (12) air cylinders of each type and size used on this project.
5. Twelve (12) electronic solenoid valves of each type and size used on this project.
6. Six (6) air filter elements used for filtering the compressed air system.
7. Three (3) pneumatic swing locks of each type and hand used on this project.
8. Six (6) door position switches of each type used on this project.
9. Fifty (50) nylon tube "quick" connectors of each type and size used on this project.
10. Five hundred feet (500') of each type and size of nylon tube used on this project.
11. Five percent (5%) of each size and type security screw used on this project.
12. Ten (10) spare blank ASSA keys, per A and B Side cut.

Note: Additional spare parts shall be provided where required and mentioned in each section.

1.08 TRAINING

A. The Detention System Contracting Firm (DSCF) shall, without additional cost of the Owner, provide a representative specially trained in the operation of security equipment and systems with a thorough knowledge of its mechanisms. The representative must be capable of training the Owner's personnel in operation, repair, and upkeep.

B. The DSCF shall be responsible to notify the Design-Builder and the Owner’s Project Manager five (5) weeks prior to substantial completion of the total security system that training is scheduled and the DSCF is to be notified of all training participants by name and position. In addition, the Design-Builder shall advise the DSCF as to who will provide the system design and operational philosophy training module. The DSCF shall notify the Design-Builder that he is to provide a training room within the facility with adequate seating for the number of trainees.

C. Length of Training:
1. The length of training is directly related to the size and complexity of the detention facility, but in no case shall the detention system training be less than three (3) days.

D. Training Staff:
   1. Detention System Contracting Firm (DSCF)
      a. The DSCF shall include in its training staff an individual or individuals knowledgeable of all of the physical and electronic security system components and how the total integrated security system operates.
      b. The DSCF training representative will provide instruction and hands on practicum for the operation, trouble shooting, maintenance and repair of all locking system components.

E. Course Structure:
   1. The representative of the design team and DSCF shall prepare and present to the training group a detailed course outline which specifies each major training module to be covered. The training program on the security equipment shall include the sequences and instructions for proper use and maintenance of all hardware, locking devices, control and monitoring systems and panels. The material content shall be in simple layman's terminology, describe and demonstrate all step-by-step physical operations necessary for proper operation and necessary equipment adjustments. At the time of the training, each trainer shall present to the trainees detailed outlines of each training module to be covered and the specific skills and knowledge which the trainee is expected to master within each training module.
   2. At a minimum the training program shall be subdivided into the following Training Modules:
      a. Operation of the Security System
         1) Operational characteristics and features and functions of all locks, sliding devices and their power source.
         2) Operational characteristics of all security electronic controls and end of line devices.
      b. Trouble Shooting, General Maintenance, Equipment Adjustments, Repair and Replacement of Security System Components
         1) Locks, locking device closers, door position switches, etc.
         2) Air compressors and associated equipment.
   3. At the conclusion of the Operation of the Security System and Trouble Shooting and Maintenance training modules, each trainee will be given a performance based assessment on that module which will determine his/her acceptable mastery of each training module.
   4. The DSCF shall video tape each training module. The video taping does not have to include individual student practicum. In preparing the video tape, the DSCF shall structure it for easy reference by the facility's training officer for future use.
   5. The tape shall include the entire presentation. The DSCF trainer shall introduce each major security training module and by means of a flip chart show each sub-component to be covered next. As a part of the turnover of the training tapes the DSCF shall prepare a Training Index denoting the location on the tape where each training section begins and ends.

F. Training Certification:
   1. Each facility employee shall receive at the conclusion of the detention system training program a certificate certifying his attendance of the total session or portion thereof, and his mastery of each of the training modules.
   2. The trainee's mastery of each training module shall be a hands-on demonstration and a written questionnaire. The trainer shall give the written portion orally in the case of non-readers.

PART 2 - PRODUCTS

2.01 SECURITY HOLLOW METAL DOORS AND FRAMES

A. Acceptable Manufacturers: Except as otherwise specified herein, the equipment and materials of this Section shall be products of the following manufacturers:
   1. Curries Manufacturing Company, Mason City, Iowa.
   2. Habersham Metal Products Company, Atlanta, GA
   3. Trussbuilt, Minneapolis, MN
   4. SDI, Hartselle, AL
   5. Forderer, San Francisco, CA

B. Clearances and Tolerances
   1. Edge clearance shall be as follows:
      a. Between doors and frames at head and jambs: 1/8"
      b. At door sills where no threshold is used: 3/4" max (A.F.F.)
      c. At door sills where threshold is used: 3/8" max (A.F.F.)
      d. Between edges of pairs of doors: 1/8"
      e. Between door bottom and nominal surface of floor coverings as provided in NFPA 80-1992, Paragraph 2-2.7: 1/2"
   2. Manufacturing tolerances shall be maintained within the following limits:
      a. Frames for single door or pair of doors width, measured between rabbets at the head: Nominal opening width +1/16", - 1/32"; height(total length of jamb rabbet): Nominal opening height +3/64"
      b. Cross Section profile dimensions:
         1) Face: +1/32"
         2) Stop: +1/32"
         3) Rabbet: +1/64"
         4) Depth: +1/32"
         5) Throat: +1/16"
      c. Frames overlapping walls are to have a throat dimension 1/8" greater than dimensioned wall thickness to accommodate irregularities in wall construction section.
      d. Hardware cutout dimensions:
         1) Template dimensions +1/64" "-0"
         2) Hardware location: +1/32"
      e. Doors:
         1) Width: +3/64"
         2) Height: +3/64"
         3) Thickness: +1/16"
         4) Hardware cutout dimensions: Templates dimensions +0.015" "-0"
         5) Hardware location: +1/32"
         6) Bow/Flatness: + 1/8"

C. Requirements for Security Hollow Metal Frames
   1. Materials: Frames shall be constructed of commercial quality steel which complies with ASTM A366. The steel shall be free of scale, pitting, coil breaks or other surface defects. Metal thickness shall be not less than 12 gauge.
   2. Fabrication: All frames shall be custom made welded units of the sizes and types shown on approved shop drawings and in compliance with ASTM F1450.
   3. Hardware Reinforcements and Preparation: Frames shall be mortised, reinforced, drilled and tapped for all templated hardware including surface mounted hardware in accordance with the final approved hardware schedule and templates provided by the hardware supplier.
   4. In cases where electrically operated hardware is required and where shown on approved shop drawings, hardware enclosures and junction boxes shall be provided and shall be interconnected using UL approved 3/4" conduit, elbows and connectors. Also, where shown on submittal drawings, junctions boxes with access plates shall be provided to facilitate the proper installation of wiring. Access plates shall be the same gauge as the

frame and fastened with a minimum of four #8-32 torx drive tamper proof machines screws, but not to exceed 6" o.c. All conduit ends to be deburred at the factory. Where frames are to be grouted in place, the conduit shall be connected to lock pockets and boxes with compression type fittings and grout tight. Frames with lock pockets and/or electrically operated hardware which do not allow access for control conduit installation (by others), shall be provided with the conduit installed to the perimeter of the frame, by the hollow metal manufacturer.

5. Floor Anchors: Floor anchors with two holes for fasteners shall be fastened inside jambs with at least four (4) spot welds per anchor. Gauge thickness of floor anchors shall be the same as frame.
6. Jamb Anchors:
   a. Frames for installation in masonry walls shall be provided with adjustable jamb anchors of the yoke and strap type made from the same gauge steel as frame. Straps shall be no less than 2" x 10" in size, corrugated and/or perforated.
   b. Mortar/plaster guards made from no less than 26 gauge steel shall be welded in place at all hardware preparations on frames to be set to masonry or concrete openings.
   c. All frames shall be provided with two (2) temporary steel spreaders welded to the feet of the jambs to serve as bracing during shipping, handling and installation.
7. Embedment Masonry Type
   a. Frames for installation in pre-finished masonry or concrete openings shall be provided with removable faces at the jambs. The frame anchors shall be located to coincide with matching embedded anchors to be provided for installation in the wall.
   b. Embedded wall anchors shall consist of a 3/16" x 4" wide x 6" plate with 3/16" x 2" x 2" angle anchors 4" long welded in place at locations to match angle anchors in frames.
   c. Angle anchors shall each be secured to jamb and to embed plate with arc welds at each end of the anchor. Anchors shall be shipped loose.
   d. The complete anchorage system shall provide that the jamb faces be removed from the frames in the field by the contractor responsible for installation, and the frames be moved into the opening until the frame anchors contact and match the embedded anchors. The contractor responsible for installation shall field weld all anchors and install the jamb faces in place. Embedment anchoring details shall be provided on approved submittal drawings.
8. Expansion Bolt Type: Frames for installation in existing masonry or concrete walls shall be prepared for expansion bolt type anchors.
9. Frames to be installed in pre-finished concrete, masonry or steel openings, shall be constructed and provided with the anchoring systems of suitable design.
10. Frames indicated to be installed in prefinished openings and required to have jambs grouted shall be provided with grout holes at each jamb to allow for grouting after installation.
11. Removable Glazing Stops: Removable glazing stops shall be pressed steel angles 1-1/4" x 1-1/4" minimum, not less than 10 gauge or 1-1/4" x 1-1/4" steel tubes, not less than 12 gauge.

D. Requirements for Security Hollow Metal Doors:
   1. Materials: Doors shall be constructed in compliance with ASTM F1450, using commercial quality, steel which complies with ASTM A366-72. Face sheets for interior doors shall be 12 gauge, as scheduled. Face sheets for interior and exterior doors shall be 12 gauge, as scheduled. Exterior doors shall have a zinc coating applied by the hot-dip process conforming to ASTM A 653/A 653M (A60).
   2. Fabrication: All doors shall be custom made, of the types and sizes shown on the approved shop drawings, and shall be prepared for hardware per the final approved hardware schedule.
   3. Hardware Reinforcements: Doors shall be mortised, reinforced, drilled and tapped at the factory for all templated hardware including surface mounted hardware, in accordance

with the final approved hardware schedule and templates provided by the hardware supplier.

a. Minimum gauges for hardware reinforcements shall be as follows:
   1) Full mortised hinges and pivots: 7 gauge.
   2) Surface applied maximum security hinges: 1/4".
   3) Reinforcements for lock mountings, concealed holders, or surface mounted closer: 7 gauge.
   4) Internal reinforcements for all other surface applied hardware: 7 gauge.
   5) Lock bolt keeper closer: 12 gauge.

4. Glass Moldings and Stops: Where specified, doors shall be provided with steel moldings to secure glazing by others in accordance with glass sizes and thickness shown on approved shop drawings.
5. Food Pass/Cuff Port: Provide hinged and lockable food passes on doors where required by the door schedule.
   a. The food pass/cuff port opening shall be flush opening continuously welded across the bottom and up both sides such that no food or liquid is able to penetrate, and also such that is will not be affected by tampering or scraping.
   b. Food pass/cuff port shutters shall be constructed from two 3/16" steel plates welded together to produce an inset fit that, when closed, will prevent tampering with the lock (Airteq #5017M-ASSA or equal) and hinges (Airteq #603 FP or equal).
   c. The shutters shall be treated for maximum paint adhesion and given a shop coat of rust-inhibitive primer. They shall be installed in the field.

E. Finish
1. All hollow metal doors and frames shall be thoroughly cleaned and coated inside and out with a fine grade corrosion resistant iron oxide-zinc chromate primer. After fabrication, all tool marks and surface imperfections shall be dressed clean by grinding, filling, and sanding as necessary to make all faces and vertical edges smooth, level, and free of all irregularities. Doors shall be treated to insure maximum paint adhesion and coated on all exposed surfaces with a rust inhibitive primer which shall be fully cured before shipment.

2.02 MISCELLANEOUS HARDWARE FOR SECURITY DOORS

A. Acceptable Manufacturers: Except as otherwise specified herein, the equipment and materials of this section shall be products manufactured by one of the listed manufacturers.

B. Products/Manufacturers:
1. Hinges: Airteq, Norshield, Southern Steel, Folger Adam
2. Pulls: Airteq, Norshield, Southern Steel, Folger Adam
3. Door Position Switches: Airteq, Sentrol
4. Door Closures: LCN
5. Door Stops: Airteq
6. Thresholds: Reese, National Guard, Pemko
7. Weatherstrip: Reese, National Guard, Pemko
8. Smoke Seal: Reese, National Guard, Pemko
9. Silencers: Glynn Johnson, Ives

C. Product Description:
1. Hinges:
   a. Full Mortise Detention Hinges (Airteq #604FMCS) shall be 4½" x 4½" x 0.188" , investment cast 304 stainless steel prime painted, with hospital tips and integral studs on both leaves. Pins shall be hardened stainless steel, concealed and non-removable. Hinges for fire labeled doors shall be US32D finished.
   b. Surface Mounted Access Door Hinges (Airteq #603, or EQ) shall be 3" x 4" x 0.210", fabricated from bonderized steel and prime painted. Hinge barrels shall be solid with no visible pin line. Pin shall be fully welded.

c. Surface Mounted Food Pass/Cuff Port Hinges (Airteq #603FP, or EQ.) shall be 3" x 4" x 0.210" fabricated from bonderized steel and prime painted. Hinge barrels shall be solid with no visible pin line. Pin shall be fully welded. Hinges shall be provided with an applied stop capable of restricting the hinge from rotating more than 90 degrees.

2. Pulls:
   a. Grip Type Door Pulls (Airteq #612, or EQ) shall be cast of brass or bronze with satin finish of approximately US4 unless specified otherwise in hardware schedule.
   b. Knob Type Door Pulls (Airteq #612, or EQ) shall be cast of brass or bronze with satin finish of approximately US4 unless specified otherwise in hardware schedule.
   c. Flush type Door Pulls (Airteq #614, or EQ) shall be cast of brass or bronze with satin finish of approximately US4 unless specified otherwise in hardware schedule.
3. Recessed Magnetic Door Position Switches (Airteq #6200 Series, or EQ) shall be a five (5) reed switch, magnet mortised type assembly used for remotely monitoring the door status/position. The device shall be moisture resistant and fit within 2" hollow metal door jamb. The device shall be field adjustable on 2 axis and supplied with a 3' vinyl jacketed lead wire and a 3 pin Molex connector. The device shall be all steel construction. The switch and magnet shall be encased in epoxy resin.
4. High Security Closer/Door Position Switches (LCN #2210, or EQ) shall be controlled by overhead concealed closers which have been tested to ten million (10,000,000) opening-closing cycles. Closers shall have full hydraulic rack and pinion action with high strength cast iron cylinder. Spring power shall be adjustable from size iii through size V. Hydraulic fluid shall be of a type requiring no seasonal adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
5. Wall or Floor Mounted Door Stops (Airteq #650, or EQ) shall be a tamper resistant device that is embedded into the wall or floor with an epoxy resin adhesive.
6. Thresholds:
   a. Thresholds (Pemko #2005AV, or EQ) shall be installed at all exterior, smoke and fire labeled door openings with flat head torx screws.
   b. Pass-Resistant Thresholds
7. Weatherstrip (Pemko #588, or EQ) shall be a self-adhesive and pressure sensitive door gasketing material that may be compressed sufficiently to seal 1/16" toleranced door and will not lose its form. The product shall be non-toxic, self-extinguishing and impervious to fungus and mildew.
8. Door Silencers (Glynn Johnson #64, or EQ) shall be standard resilient type and removable for replacement.

2.03 MECHANICAL LOCKS AND SLIDING DEVICES FOR SECURITY DOORS

A. Acceptable Manufacturers: Except as otherwise specified herein, the equipment and materials of this section shall be products of one of the following manufacturers:
   1. Airteq (AT), Portland, OR.
   2. Southern Steel Co. (SSCO), San Antonio, TX.
   3. Folger Adams, Lemont, IL

B. Mechanical Locks and Accessories for Swinging Doors:
   1. Standard Features :
      a. Lock case to be high tensile strength allow steel with cold rolled steel cover. Latchbolt to be cold rolled steel with ¼" diameter hardened steel inserts (2 each).
      b. Lock to operate by inserting a high security mortise mogul or paracentric key into matching cylinder and rotating key to align five (5) spring temper hardened brass lever tumblers. Lever tumblers to be held in position by flat phosphor bronze springs.
      c. All lock steel parts shall be zinc plated for corrosion protection and are suitable for both interior and exterior applications.
      d. Keyed One Side (K1S) or Keyed Two Sides (K2S)

C. Products
1. Mechanical Deadlocks, AT #5016
   a. Lock size to be approximately 4-¼" x 1-¼" x 3". Deadbolt to be ¾" x 1-½" stainless steel. Deadbolt locking and unlocking activated by key only.

2. Mechanical Latch, AT #5017
   a. Lock size to be approximately 4" x 1-¼" x 2-¾". Beveled latchbolt to be ½" x 1" stainless steel with 7/16" throw.
   b. Beveled latchbolt to be retracted by key operation only. Latchbolt to snap - lock on closing.
3. Mechanical Latch With Mogul Key Cylinder, AT #5017M
   a. Lock size to be approximately 4" x 1-¼" x 2-¾". Beveled latchbolt to be 7/16" x 1" stainless steel with 7/16" throw.
   b. Lock shall be supplied with six (6) pin mogul key cylinder.
   c. Beveled latchbolt to be retracted by key operation only. Latchbolt to snap - lock on closing.
4. Mechanical Latchbolt With Key Operated Deadlock, AT #5060 .
   a. Lock size to be approximately 8-¼" x 1-½" x 4-½". Beveled latchbolt to be ¾" x 2" with ¾" throw. Beveled latchbolt to be retracted by key operation only. Latchbolt to snap - lock on closing. Requires key to be turned 360 degrees for deadlocking of latchbolt.
   b. Optional: Beveled latchbolt to be retracted by knob operation. Available from either or both sides of door, Airteq #5060K. Deadlocking latchbolt via key negates knob operation.
5. Mechanical Deadlatch, AT #5070 .
   a. Lock size to be approximately 8-¾" x 1-½" x 5". Beveled latchbolt to be ¾" x 2" with ¾" throw. Beveled latchbolt to be retracted by key operation only. Lockbolt to slam lock on closing. Provide deadlock actuator for automatic deadlocking of latchbolt when door is closed.
6. Mechanical Deadlock, AT #5080.
   a. Lock size to be approximately 5-½" x 1-½" x 3-¾". Lockbolt to be ¾" x 2" with ¾" throw. Deadbolt locking and unlocking activated by key only.
7. Accessories
   a. Mortise keeper
   b. Mortise keeper with dust box
   c. Surface mounted keeper
   d. Food pass/cuff port keeper 5017M only
   e. Mortise strike keeper switch, SPDT, 5 amp at 125 VAC, 0.5 amp at 125 VDC, UL recognized.
   f. Mortise strike keeper
   g. Surface mounted strike keeper
   h. Escutcheon (AT #601)
8. Manual Two-Point Locking Sliding Device, NS #7205
   a. Operation: Individual sliding door devices shall be manually unlocked at the door with a ASSA type security key. Key cylinders shall be located in the receiving jamb, hip high. Doors shall be manually opened and closed. Moving the door to the full open or full closed position shall cause the door to automatically lock and deadlock.
   b. Construction
      1. Door rollers shall be of self lubricating construction, with lifetime lubricated bearings.
      2. Roller axles shall be constructed of 8620 alloy cold drawn steel, with a Rockwell 58-62C hardness.
      3. Roller track shall be constructed of a single solid piece of 1018 cold drawn steel.
      4. The locking device shall be two-point rear locking and lock at the top and bottom of the door, in both the opened and closed position.

5. The locking mechanism shall include a positive mechanical deadlock feature. Vertical locking column shall be formed from 10 gauge steel.

c. Housing Construction
   1. Housing covers shall be constructed of 10 gauge hot rolled steel plate and secured in place with approved security screws.
   2. Cover shall be one piece construction, securely enclosing the top, front and bottom of the device.
   3. There shall be no flat surfaces on the housing or in the baffle which could be used to hide contraband.
   4. The rear of the housing shall be constructed of 3/16" steel plate and anchored in place as required.
   5. In cases where device housings are not continuous, ends shall be neatly closed and welded, with 10 gauge hot rolled steel plate.

2.04 COMPRESSED AIR SYSTEM, PNEUMATIC LOCKS AND LOCKING DEVICES

A. Acceptable Manufacturers: Except as otherwise specified herein, the equipment and materials of this section shall be components fabricated by one single manufacturer. The following manufacturers are pre-qualified to supply the products specified under this Section:
   1. Norshield (NS), Montgomery, AL
   2. Airteq Systems, W.S.A. Inc.(AT), Portland, OR
   3. Southern Steel Co. (SSCO), San Antonio, TX
   4. Folger Adams, Lemont, IL

Note: Pre-qualification is not acceptance of manufacturer's standard products. Pre-qualification is only approval to supply products meeting all specifications herein.

B. Section includes complete system of pneumatic locking and operating devices, under electrical control, for individual swing and sliding detention doors as scheduled.
   1. System components:
      a. Air compressors and storage tanks
      b. Filtering and drying equipment.
      c. Air lines and associated fittings.
      d. Pneumatic swing door locks.
      e. Pneumatic sliding door locking devices.

C. Compressed Air System and Components: Specific system components shall be adequately sized by the supplier in accordance with component manufacturer's specifications. System shall be designed for a capacity air output of 100% of the required load.
   1. Air Compressors: Compressors shall consist of, but not be limited to, compressors, motors, V-belt drives that are totally enclosed with an O.S.H.A. approved belt guard, all mounted on A.S.M.E. Coded and National Board approved air receivers.
      a. Furnish complete one or two stage, 120, 208, 480 volt, one three phase electric motor driven tank mounted air compressors.
      b. Compressors shall be sized so that each compressor has the ability to meet all air requirements under normal operation and not exceed a maximum 40% duty cycle. Compressors shall be sized to provide sufficient air to provide the following number of operations:
         1) Cell and Stair Device: 8 operations per 24 hour period.
         2) Medium Use Corridor Device: 150 operations per 24 hour period. (90% of all corridor doors shall be considered medium use.)
         3) High Use Corridor Device: 320 operations per 24 hour period. (At a minimum, 10% of all corridor doors shall be considered high use.)
      c. Compressor recovery time shall be not more than fifteen (15) minutes.
      d. The air system shall have the ability to provide a minimum air pressure of 125 PSIG (+/- 10%).

e. Provide vibration isolators in accordance with compressor manufacturer's specifications.
f. System shall be provided with starters, solenoid unloaders and pressure switches. All associated 120,208,480V, 1 or 3 phase power wiring, conduit, electrical disconnects, hangers, and etc. shall be provided by the electrical contractor.
g. Exhaust silencers/muffler shall possess a 60db rating or less.

2. Alternating Compressor Controller: Provide an automatic lead-lag alternating compressor controller system for the entire facility.
   a. Under normal conditions, the controller shall alternately operate compressors. If the lead compressor is out of service or fails to start, the standby compressor shall start. If the lead compressor starts but fails to satisfy demand, the controller shall operate both compressors simultaneously until demand is satisfied.
   b. The alternating compressor controller shall consist of, but not be limited to, across the line starters, motor circuit protectors, timers, counters, relays, pressure sensing switches and transformers with all necessary interconnection wiring.
   c. The controller shall be enclosed within a NEMA 1 enclosure of applicable size to meet the N.E.C. code requirements. The enclosure shall be wall mounted adjacent to the compressors. Mounting of the compressor controller on the compressor receivers shall not be permitted.
3. Compressed Air Dryer:
   a. Provide one air dryer for each air compressor furnished.
   b. Dryers shall be sized for normal institutional operation as opposed to airflow associated with all swing locks and sliding door devices operating simultaneously.
   c. Provide refrigerant type compressed air dryer.
   d. Dryer shall provide a minimum dew point of 35 to 38 degrees F.
   e. Include all necessary mounting brackets and/or stand for dryer.
   f. Provide valved bypass air lines around the dryer to allow for routine servicing without system shutdown.
4. Compressed Air Receiver/Storage Tanks:
   a. Receivers and compressed air storage tanks shall be sized to provide sufficient air storage to limit compressors to a minimum of four (4), maximum of six (6) starts per hour. The air storage system shall be sized to permit each swing lock and sliding door device to operate twice when no input from the compressor is available.
   b. Provide high pressure relief valves and air pressure gauges on all receivers and storage tanks.
   c. Provide particle filters at the outlet ports and automatic drains on all receivers and storage tanks upstream and downstream from the air dryer. Service bypasses shall be provided around filters and tanks and shall have redundent filtration.
   d. In-line particle filters with water separators shall be provided between air receivers and the refrigerant air dryer.
   e. All water separating and coalescing filters shall be equipped with automatic drains and service bypass lines.
   f. Pressure regulators shall be provided to reduce line pressure to a maximum of 125 PSIG.
   g. Pipe all automatic drains to the nearest floor drain.
5. Compressed Air Distribution System:
   a. Air piping shall be sized to permit normal operation of locking devices, including group release, without dropping below 80 PSIG line pressure at any time. Air pressure to any individual component, beyond compressor/dryer/filtration system, shall not exceed 125 PSIG at 70 degrees F.
   b. Air distribution piping shall be Nylon 11 tubing rated for 100 PSIG at 260 degrees F.
   c. Nylon tubing shall be run in conduit, raceways or cable trays. Splices or tees shall be permitted only in accessible locations such as junction boxes or pipe chases.
   d. All conduit is to be run concealed in occupied spaces. Conceal conduit in all other spaces wherever possible. Where exposed, piping/tubing conduit is to be securely fastened at regular intervals and run in a neat workmanlike manner.

e. Tubing shall be tagged at all valves, tees, manifolds and boxes. Tags shall indicate door number. Valves shall be tagged to correspond with the valve numbers indicated on the approved shop drawings and the normal operating position shall be indicated.
f. All distribution manifolds shall be aluminum, brass or stainless steel.
g. All air lines shall be purged before final connections are made to the end-of-line devices.

6. Air Quality: Air supplied to the devices shall have been processed through filtering, cooling and drying equipment and as a minimum, shall meet the following:
   a. Solid particulate matter shall be filtered to 5.0 micron or less.
   b. Solid oil particles shall be filtered to 0.3 micron or less.
   c. The air must be free of water vapor to a pressure dew point of 35 degrees F.

D. Pneumatic operated security locks for individual swinging doors, complete with integral electronic and pneumatic components.
   1. Function:
      a. Normal Operation
         1) When electrical power is applied to the solenoid valve, the latchbolt shall retract. The bolt shall remain retracted as long as power is applied.
         2) When power is removed, the latchbolt shall extend, locking the door if closed, and allowing the door to be slam-locked if open.
      b. Manual Operation
         1) Each lock shall have a local manual key override lock/unlock feature. Keyed two sides (K2S), keyed one side (K1S).
         2) Rotating the key shall mechanically retract the latchbolt. Removing the key shall extend the bolt, locking the door if closed, and allowing the door to be slam-locked if open.
   2. Components
      a. Mechanical
         1) Lock shall operate when supplied with air between 40 PSIG minimum and 125 PSIG maximum.
         2) Lock shall operate as a fail-secure slam-lock. Unlocks when energized.
         3) Lock body shall be made of steel or stainless steel.
         4) Lock shall be factory plumbed with a quick connect air fitting.
         5) Lock shall be supplied with a security ring unpainted for installation in hollow metal frame by hollow metal manufacturer to protect cylinder.
         6) Cylinder extensions shall be provided for locks keyed 2 sides or keyed stop side.
      b. Electrical:
         1) Solenoid valve shall be 1.5 watt, 24 VDC, continuous rated by valve manufacturer.
         2) Lock shall be provided with a lock status switch to provide interlocking capabilities.
         3) Switches shall be of the snap acting mechanical type, UL recognized and rated at 5 amps.
         4) Lock shall be factory wired to a plug disconnect.
         5) Lock status switch shall provide the following indications:
            a) Locked/deadlocked indication.
            b) Unsecure indication.
   3. Optional Features: Where specified by the security hardware/door schedule, the following features shall be provided:
      a. Remote latch holdback feature (RLHB): Latchbolt is retracted by the push of a button at the control panel and remains electrically retracted until the button is pushed a second time. Latchbolt extends when power is removed, regardless of the door position. ***Note****: This is an electronic control function and must be coordinated with the locking control system.*

b. Emergency latch holdback feature (ELHB) allows for the latchbolt to be retracted by remote electronic control. Once retracted, the latchbolt remains mechanically retracted until relocked with the key.
c. Key switch feature (KS) allows the lock to be electrically actuated locally at the door.
d. Key operated latch holdback feature (KLHB) allows for the latchbolt to be retracted locally, with the key. The latchbolt remains mechanically retracted until relocked with the key.
e. Remote Manual Emergency Release System (RMERS): See Paragraph "F".

4. NS9400 Series Airlock, a medium security remote controlled pneumatic operated lock for individual swing doors; a mortised slam-lock with automatic deadlocking for standard 2" door frame installation, complete with integral electronic and pneumatic components.
   a. Physical Characteristics:
      1) The lock shall automatically deadlock when the door is slam-locked in the manual mode, even in the event of a total loss of air and/or electric power.
      2) Latchbolt shall be alloy steel, case hardened Rockwell C 60 to a depth of 0.030" and shall have a ¾" throw and 20,000 pound shear strength.
      3) Lock shall have a mechanical deadlock actuator, and shall automatically deadlock when door is closed.
      4) Lock shall be designed to accept a mortise key cylinder, conforming to ANSI/BHMA ASSA V-10 type security cylinder American National Standard of Auxiliary Locks Associated Products.
      5) Underwriters Laboratories Inc. Label: U.L. approved electrically controlled single point lock for use on swinging fire doors having a rating up to and including 1½ hours.
   b. Special Function: Remote latchback (RLB); when the RLB function is specified by the security hardware/door schedule, the latchbolt shall be retracted by remote electronic control and shall remain mechanically retracted until the door is opened approximately 2", at which time the latchbolt shall extend allowing the door to be slam locked. The door shall automatically deadlock when closed. The latchbolt remains in the retracted position until the door is opened, even in the event of loss of air and/or electric power.
5. NS9500 Series Airlock, a maximum security, narrow jamb slam lock with surface (door) mounted strike bolt, for 2" frame installation:
   a. Physical Characteristics:
      1) Latchbolt shall be made of ¾" diameter high strength alloy steel with polished hard chrome plated finish.
      2) Strikebolt shall be made of 1" diameter high strength alloy steel, furnished with anti-friction insert.
      3) Strikebolt shall engage the latchbolt through a 1¼" hole in the face of the door frame and provide a secure tamper proof interface.
      4) Lock shall have a linear action, with only one moving part required for locking door.
      5) Lock shall be designed to accept mortise key cylinder, conforming to ANSI/BHMA ASSA V-10 type security cylinder American National Standard of Auxiliary Locks Associated Products.
      6) Underwriters Laboratories Inc. Label: U.L. approved electrically controlled single point lock for use on swing fire doors having a rating up to and including 1 1/2 hours.

E. 24 VDC Pneumatic operated sliding devices with two point locking for cell, entrance, sallyport and corridor doors:
   1. Components:
      a. Mechanical
         1) Door rollers shall be self lubricating, incorporating sealed lifetime lubricated bearings. Rollers shall have a concave arcuate engaging surface to provide for smooth quiet operation.

2) Roller axles shall be constructed of 8620 alloy cold drawn steel. Case harden axles to Rockwell C 60.
3) Roller track shall be constructed of a single solid piece of 1018 cold drawn steel.
4) Door shall lock at the top and bottom in both the open and closed positions.
5) The vertical lock bar shall be mechanically connected to the lock mechanism at all times.
6) The locking mechanism shall include an automatic mechanical deadlock feature.
7) Vertical locking column to be formed out of 10 GA steel.
8) Top and bottom door guides must be designed to limit side motion of door to +/- .030 inches or less to significantly reduce rattle induced noise.
9) Bottom door guide shall have replaceable non-metallic wear pads to provide for smooth silent operation.

b. Electrical:
1) All devices shall be factory wired to a multi-pin connector located within the housing above each door.
2) All switches necessary for the function of the device and for door status indication shall be U. L. recognized and rated at 5 amps.
3) All solenoid valves shall be rated by their manufacturer for continuous operation.
4) No more than three (3) wires shall be required to control the door.
5) No more than three (3) wires shall be required to monitor the lock bar and door position.
6) Device shall be supplied with status switches to provide indication and interlocking capabilities.
7) Status switches shall provide the following indications:
a) Deadlocked closed
b) Deadlock open
c) Housing
1) Housing covers shall be constructed of 10 gauge steel plate and shall be secured with security screws. Cover shall be of one piece construction, securely enclosing the top, front, and bottom of the door operator.
2) The door hanger slot shall be securely baffled in both the door open and door closed position.
3) There shall be no exposed flat surfaces on the housing or in the door hanger slot.
4) The rear of the housing shall be constructed of 3/16" steel plate.
5) The housing shall protrude from the wall surface a maximum of six (6) inches and extend a maximum of twelve (12) inches above the door opening.
6) In cases where device housings are not continuous, ends shall be neatly closed and welded with 10 gauge steel plate.

2. Optional Features: Where specified by the security hardware/door schedule, the following features shall be provided.
a. Hip-high key release feature with choice of mortise cylinder provides for local manual and/or electric control of each door by release mechanism located approximately 40" above finish floor. Key two sides (K2S), key one side (K1S).
b. Door skirt feature (DS) decreases standard 3" door undercut.
c. Hinged housing cover (HHC) feature provides for hinged covers on individual devices.
d. Three (3) hour UL fire rating for sliding doors as required by code.

3. Norshield #NS8250 Airglide, a maximum security, remote operated, two point locking device for sliding corridor and sallyport doors.
a. Normal Operation:
1) When the door is locked closed, activation of the open switch shall cause the lock mechanism to release and the door to move to the fully open position and automatically deadlock.

2) When the door is locked open, activation of the closed switch shall cause the lock mechanism to release and the door to move to the fully closed position and automatically deadlock.
3) Operator shall be capable of opening or closing door at a speed of 12 inches per second. Door speed shall be independently adjustable at each door.
4) Door shall decelerate as it reaches the full open or full closed position and not "bang" open or closed.
5) Operating force shall be factory set at 40 pounds (maximum). The operating force shall be independently adjustable at each door.
6) Device shall provide for sufficient resistance to prevent freewheeling of door in the event of total loss of air supply and/or electric power.
7) If an obstruction is placed in the path of the door, the door shall stall indefinitely without harming the device. When the obstruction is removed, the door shall resume movement in the selected direction.
8) Operator shall be capable of stopping the door or "instantly" reversing the direction of door travel at any point and immediately resuming the preset travel speed of the door.
9) Whenever a door is stopped in any intermediate position, it shall be possible to manually move the door to the full open or full closed position and the door will automatically deadlock.
10) Mechanisms that hold the lock bar in place with air, spring or gravity pressure will not be accepted.
11) Hip-high key release with choice of mortise cylinder, shall electrically activate the door. This operation shall duplicate the open/close functions of the security control panel. Release mechanism shall be located approximately 40" above finish floor.

b. Manual Operation:
1) In the event of a total loss of air supply and/or electric power, individual doors may be released manually at the door with a hip-high key release. With the lock mechanism released, moving the door manually to the full open or full closed position shall cause the door to automatically deadlock.
2) Manual operation of any door shall not interfere with the normal operation of other doors.

F. Emergency Release Systems: Where specified by the hardware schedule, security hardware schedule or door schedule, the following emergency release functions shall be provided for sliding cell door locking devices.
1. Remote Manual Emergency Release System (RMERS)
a. Provide compressed air emergency release tank(s) and valve assembly to emergency unlock cell doors, in defined groups (see control panel schedule), in the event of total loss of air and/or electric power.
b. The emergency release tank(s) and valve assembly shall be installed in a lockable cabinet. The cabinet shall be clearly labeled "Emergency Release System".
c. The emergency release system shall be totally manual in operation. Once the system has been activated, the doors shall unlock and remain unlocked until the system is deactivated. Once unlocked, doors may then be manually moved to the open position.
d. Check valves shall be installed on the supply lines at each tank to prevent air from leaking out of the tank when not being supplied from the air compressor(s).
e. Air lines serving each group of devices from the emergency release system may be run in the same raceway/conduit as the normal air lines.
f. Air tubing for the emergency release system shall be a minimum of ¼" outside diameter, and shall be properly labeled ("Emergency") at each device, splice or tee.
g. Color coded air tubing may be used in place of labeled tubing.
2. Remote Controlled Emergency Release System (RCERS)

a. Provide compressed air emergency release tank(s) and valve assembly to provide for full remote controlled operation of groups of cell doors, in the event that the normal air supply is lost, but electronic control remains active.
b. The system shall provide one complete cycle of all sliding cell doors, (unlock, open, lock open, close and lock closed) and one complete cycle of all swing cell doors (unlock and lock).
c. Check valves shall be installed on the supply lines at each tank to prevent air from leaking out of the tank when not being supplied from the air compressor(s).
d. Air lines serving each group of devices from the emergency release system, shall be run in the same raceway/conduit as the normal air lines.
e. Air tubing for the emergency release system shall be a minimum of ¼" outside diameter, and shall be properly labeled ("Emergency") at each device, splice or tee.
f. Color coded air tubing may be used in place of labeled tubing.

2.05 KEYING AND KEYS

A. Keying and Keys
1. The DSCF will prepare a proposed key schedule showing their recommendations for the system layout. The DSCF will provide copies of the system layout sorted by both door number and key change. The Design-Builder and Owner will review the schedule and make desired modifications. If required, the DSCF, Design-Builder and Owner shall meet to finalize the system layout.
2. ASSA Builders hardware, high security mortise and mogul type cylinders shall be keyed in sets and master keyed, grand master keyed, etc. to level as directed. Provide three (3) keys per key change and three (3) keys per master level.
3. Paracentric prison locks shall be keyed in sets, and provided with three (3) keys for each set. Each key to be not less than 4-1/2" in length. Blade to be 7/8" wide by 5/32" thick. Key to have overlapping paracentric grooves to match similar grooves in cylinder. Handle to be of oval shape to properly fit hand, about 2-1/4" x 1-3/8" in size and separated from the key blade by 1/2" x 1-1/2" shank to provide clearance for officer's hand. Entire key to be made of polished alloy bronze having tensile strength of not less than 90,000 lbs. and a hardness of the Brinell scale of at least 150. Stamp each with number or letter per manufacturer's requirements.

B. Key Control System: One required, locate as directed by the Owner.
1. Cabinets and components shall be manufactured by Telkee, Inc, or equal. Each cabinet shall have a maximum security push button lock manufactured by Simplex, or equal. System shall include complete set up instructions, with three way cross index system and dual tag system, and instructions to the Owner on proper use of the system. Cabinet to be sized to accommodate one complete set of keys provided by the DSCF and builders hardware keys provided by other.

2.06 SECURITY HARDWARE SCHEDULE

NOTE: The following are examplesonly of typical security hardware sets required for different applications. The DSCF must prepare a complete schedule identifying types of devices and their locations for all security openings.

SE1 (Controlled/Monitored, 2" HM Jamb)
Doors: ***Identify by door number/symbol***
3 Hinges, Airteq 604FMCS x US32D
1 Lock, Airteq 9400 x K2 x RLHB x US32D
1 Cylinder Extension, Airteq x Jamb Width
2 Cylinders, ASSA Twin 6000 x US26D
1 DPS, Airteq 6200 x US32D
1 Closer, LCN 4210 or 4510 (As Required) x AL

1 Loop Pull, Airteq 612 x US26D
1 Flush Pull, Airteq 614 x US26D
1 Door Stop, Airteq 650
3 Silencers, GJ64

SE2 (Controlled/Monitored, Exterior Egress, 2" HM Jamb)

Doors: *To be identified*

3 Hinges, Airteq 604FMCS x US32D
1 Lock, Airteq 9400 x K2 x RLHB x US32D
1 Cylinder Extension, Airteq x Jamb Width
2 Cylinders, ASSA Twin 6000 x US26D
1 DPS, Airteq 6200 x US32D
1 Closer, LCN 4210 or 4510 (As Required) x AL
2 Loop Pull, Airteq 612 x US26D
1 Threshold, Reese S483AV x AL
1 Weatherstrip, Reese 797B
1 Door Stop, Airteq 650

SE3 (Controlled/Monitored, Corridor Sliding Device)

Doors: *To be identified*

1 Pneumatic Device, Airteq 8250 x K2 x DS
2 Cylinders, ASSA Twin 6000 x US26D
1 Loop Pull, Airteq 612 x US26D
1 Flush Pull, Integral Part of Hollow Metal Door

Foodpass/Cuffport Hardware

2 Hinges, Airteq 603FP x USP
1 Lock, Airteq 5017B x USP
1 Cylinder, ASSA Twin 6000 x US26D

SE4 (Controlled/Monitored, Exterior Rec. Yard)

Doors: *To be identified*

3 Hinges, Airteq 604FMCS x US32D
1 Lock, Airteq 9500 x K2 x RLHB x US32D
1 Cylinder Extension, Airteq x Jamb Width
2 Cylinders, ASSA Twin 6000 x US26D
1 DPS, Airteq 6200 x US32D
1 Loop Pull, Airteq 612 x US26D
1 Flush Pull, Airteq 614 x US26D
1 Threshold, Reese S483AV
1 Weatherstrip, Reese 797B x AL
1 Door Stop, Airteq 650

SE5 (Controlled/Monitored, Cells, 2" HM Jamb)

Doors: *To be identified*

3 Hinges, Airteq 604FMCS x USP
1 Lock, Airteq 9400 x K1(Outside) x RLHB x US32D
1 Cylinder, ASSA Twin 6000 x US26D
1 DPS, Airteq 6200 x US32D
1 Loop Pull, Airteq 612 x US26D
1 Flush Pull (Inmate Side), Airteq 614 x US26D
1 Door Stop, Airteq 650
3 Silencers, GJ64

Foodpass/Cuff port Hardware

2 Hinges, Airteq 603FP x USP
1 Lock, Airteq 5017B x USP

1 Cylinder, ASSA Twin 6000 x US26D

SE6 (Controlled/Monitored, Exterior Rec. Yard)
Doors: *To be identified*.
3 Hinges, Airteq 604FMCS x US32D
1 Lock, Airteq 9500 x K2 x RLHB x US32D
1 Cylinder Extension, Airteq x Jamb Width
2 Cylinders, ASSA Twin 6000 x US26D
1 DPS, Airteq 6200 x US32D
1 Loop Pull, Airteq 612 x US26D
1 Flush Pull, Airteq 614 x US26D
1 Threshold, Reese S483AV
1 Door Stop, Airteq 650

2.07 SECURITY FURNISHINGS AND ACCESSORIES

A. Acceptable Manufacturers: Except as otherwise specified herein, the equipment and materials of this Section shall be products of the following manufacturers:
   1. Norshield, Montgomery, AL
   2. Southern Steel, San Antonio, TX
   3. KLN Steel Products, San Antonio, Texas.
   5. Folger Adams, Lemont, IL
   6. CCC Group, Inc., San Antonio, Texas
   7. Bob Barker Co., Inc., Fuquay-Varina, NC
   8. McGregor Industries, Inc., Dunmore, PA
   9. Norix Group, Inc., West Chicago, IL

Note: Unless noted otherwise, the furnishings and accessories herein specified are products as manufactured by Norix Group, Inc. Products of equal quality which contain the same features and construction methods and materials will be acceptable from the above listed approved manufacturers. Dimensions noted are approximate.

B. Finish: The following applies to all products in this Section unless otherwise noted.
   1. All finish work shall be neat and free of scale, pitting, coil breaks or other surface defects. Prior to painting, took marks and imperfections on exposed surfaces shall be dressed clean by grinding, filling, and sanding.
   2. All materials are to be cleaned with either a pressure washer having an iron phosphate conversion coating or an industrial solvent applied and wiped clean.
   3. Primed metal surfaces shall be coated with Tnemec Series 27 epoxy primer to a film thickness of 5 mil (+/- 1 mil).
   4. Factory applied finish coat shall be Tnemec Series 70 or 71 Endura-Shield epoxy applied to a film thickness of 2 mil (+/- .5 mil).
   5. Design-Builder is responsible for finish epoxy at the job site.

C. Wall Mounted Bunk: KLN-9750-2780
   1. Overall size of bunk shall be approximately 6'-8-3/8" long x 2'-5" wide (fits 27” x 80” mattress)
      a. Bed end panels: 3/16" hot rolled P & O gauge steel sheet.
      b. Bed deck: 10 gauge hot rolled P & O to meet ASTM A569-85 Standards.
      c. Bed rail formations: ¼” thick
   2. In cells with two (2) wall mounted bunks, provide KLN-9207B ladder.
   3. If precast concrete cells are provided, cell manufacturer shall provide bunk(s) equivalent to the model specified.

D. Double Bunk: Norix Ironman Steel Bunk System Model # B510-200, Floor Mounted, ladder.
   1. Overall size of bunk to be 6'-8 1/4" long x 2'-3 1/4" wide x 4'-4" high.
      a. Pan: 12 gauge steel
      b. Welded legs: 2” x 2” x 3/16” standard angle with bolt-down tabs.

c. Ladder: Manufacturer's standard

2. Bunk may be shipped factory assembled or K.D. for field assembly. All required anchors, fasteners and assembly hardware to be provided by the installer.

E. Bed: Norix Ironman Steel Bunk System Model # B510-100, Floor Mounted
1. Overall size of bunk to be 6'-8 1/4" long x 2'-3 1/4" wide x 1'-4 1/4" high.
   a. Pan: 12 gauge steel
   b. Welded legs: 2" x 2" x 3/16" standard angle with bolt-down tabs.
2. Bunk may be shipped factory assembled or K.D. for field assembly. All required anchors, fasteners and assembly hardware to be provided by the installer.

F. Access Panel, Norshield NS766
1. Frame to be 2" x 3" x 3/16" angle with 1" x 1" x 1/8" angle door stop on three (3) sides.
   a. Door: 10 gauge carbon steel sheet with 1-1/2" flange four (4) sides.
   b. Panels: Equip with two (2) each S605 hinges and one (1) each Airteq #5012 deadlock.

G. Wall Mounted Steel Desk: Norix Ironman Cell Desk Model # D565 (one per cell, typical)
1. Overall size of steel desk shall be 3'-1 ¾"" wide x 1'-4" deep x 2'7 3/8" high
2. Fabrication
   a. Fully welded
   b. Flanged edges and perimeters
   c. Floor-mounting tabs with holes for bolt-down application
   d. Shelves hemmed at front for safety
   e. Hinged seat support to swing seat away from or under desk
3. Materials
   a. Top: 10 gauge steel with baked-on factory-applied epoxy powder coat finish
   b. Sides 12 gauge steel
   c. Shelves: 12 gauge steel
   d. Seat: 12" dismeter one piece formed of 14 gauge stainless steel with 1 ½" drop edge; stainless steel mounting studs.
4. Ship factory assembled. Bolt to floor with manufacturer's recommended fasteners.

H. Floor Mounted Stool: Norix Model # S561-120
1. Size: 1'-0" diameter x 1'-6" high.
2. Fabrication
   a. Base: 2 ½" tubing, fully welded top and bottom to 6" x 6" x ¼" plate with four countersunk holes each
   b. Seat: Stainless steel
3. Materials
   a. Base: 14 gauge steel tubing with ¼" thich steel mounting plates
   b. Seat: 14 gauge stainless steel, 304 with #4 finish

I. Dayroom Television Monitor Mounting Bracket: Norshield NS6100
1. Wall or ceiling-mounted 14 gauge rectangular tubular steel arm, welded to a 6" x 12" -12 gauge steel mounting plate. Reinforced with 14 gauge steel gusset plates welded to the mounting plate. The bracket shall accommodate a 25" monitor and support weight of up to 120 pounds. All required anchor bolts to be provided by installer.

J. Round Dayroom Table with Attached Stools: Norix Econo-Max Table, Model # EMX 4204-4
1. Type: Heavy-duty with four attached stools, engineered for continuous use in correctional environments, handicapped accessible and mounted to the floor per manufacturer's requirements for maximum security.
2. Materials and Construction:
   a. Overall size of unit: Approximately 3'-6" diameter table top x 2'-6½" high.
   b. Top: 10 gauge stainless steel, type 304 with No. 2 finish, 1-1/2" drop flange.
   c. Base: 2 ½" Diameter, 14 gauge steel tubing
   d. Seats (4): 14 gauge gauge stainless steel, type 304 with No. 2 finish, 12" diameter with 1-1/2" drop edge; stainless steel mounting studs.

e. Special: Provide gametop version for half tables of this size wherever used in a day room.
f. All required anchors, bolts and fasteners to be provided by the installer.

K. Rectangular Dayroom Table with Attached Stools: Norix Econo-Max Table, Model #
1. Type: Heavy-duty with eight attached stools, engineered for continuous use in correctional environments, handicapped accessible and mounted to the floor per manufacturer's requirements for maximum security.
2. Materials and Construction:
a. Overall size of top: Approximately 8'-0" x 2'-6" x 2'-7½" above finish floor.
b. Top: 10 gauge stainless steel, type 304 with No. 2 finish, 1-1/2" drop flange.
c. Base: 2 ½" Diameter, 14 gauge steel tubing
d. Seats (8): 14 gauge gauge stainless steel, type 304 with No. 2 finish, 12" diameter with 1-1/2" drop edge; stainless steel mounting studs.
e. Special: Provide gametop version for half tables of this size wherever used in a day room.
f. All required anchors and bolts to be provided by the installer.

L. Chairs: Norix Integra Arm Chair, Model # C120.
1. Provide stackable arm chairs in Dayrooms, Multi-Purpose Rooms, Booking, Visitation and other locations where shown. Chairs shall have been engineered for durability and continuous use in correctional environments.
2. Materials and Construction: One-piece injection molded high-impact-grade copolymer polypropylene. Material shall resist UV fading and shall have an integral anti-static additive. Reinforce underside of chair with a minimum of 20 honeycomb-ribbed cells.
3. Flammability: Chairs shall be certified to pass state of California Technical Bulletin Number 133, *Flammability Test Procedure for Seating Furniture for Use in High-Risk and Public Occupancies*.

M. Mirror: Norix Ironman Cell Mirror, Model # R565-411
1. Size: Outside frame dimensions 11 ¼" x 17 ¼", mirror opening 9¼" x 15¼".
2. Frame: 1" wide, 18 gauge type 430 stainless steel
3. Mirror surface highly polished
4. Fasten to wall as recommended by manufacturer. Provide all required mounting and attachment devices.

N. Safety Clothes Hook: Norix Ball Clothes Hook Unit, Model # 5565-528.
1. Fabrication: Formed and welded stainless steel wall mount clothes hooks with four (4) friction type collapsible hooks.
2. Size: Approximately 1' - 6" long x 5½" high.
3. Material:
a. Body – 14 gauge, type 304 stainless steel
b. Hooks – Machined type 304 stainless steel
4. Finish: Brush satin finish
5. Installation: Bolt to wall with security fasteners.

O. Recessed Security Toilet Paper Holder - TPH
1. Holder: 14 gauge Type 304 stainless steel with a satin finish. Holder shall be 5" in diameter x 4" deep (nominal) to accommodate a standard toilet paper roll. Secure unit from the rear with 1/4" threaded rust-resistant rods and nuts with backup plate to accommodate wall thickness and securely anchor the assembly.
2. Provide one unit at each inmate toilet room and worker toilet room that does not have an integral toilet paper holder, and at each holding cell toilet.
3. Acceptable Products/Manufacturers:
a. Bobrick B-592, Los Angeles, CA.
b. Acorn 81: City of Industry, CA.
c. MetCraft 1840, Grandview, MO.

S. Inmate Property Storage System:
1. Inmate Housing Areas - Products as manufactured by Norix Group, Inc., 1000 Atlantic Drive, West Chicago, IL 60185. Phone 800-234-4900.
   a. Inmate Property Box: Item #PB-200 (160 required).
   d. Property Box Lid: Item # PBL-400 (160 required).
2. Central Inmate Property Storage Room
   a. Electric Conveyor:
      (1) One or two tier electrically-powered bi-directional chainless drive garment bag conveyor system equal to Railex Models 723CF – 743CF, constructed specifically for use in correctional facilities.
      (2) Capacity 300 hanging bags @ approx. 4.5" thickness each
      Includes electrical control systems, pre-wired for electrical supply connection.
   b. Garment Storage Bags:
      (1) Hanging nylon mesh storage bag equal to Pacific Concepts, Inc. StrongLocker hanging bag.
      (2) Size: Approximate dimensions 22" W x 36" L with 4" gusset, overall length 39".
      (3) Quantity: 160 bags initially
   c. Valuables Storage Pouches:
      (1) Solid color pouch equal to Pacific Concepts Valuables Pouches VP-L(Y).
      (2) Size: Approximate dimensions 8" x 11".

2.07 SECURITY GRILLES

A. Grill/Grate Types: Unless specifically noted OH (Open Hearth), the Design-Builder will provide tool-resisting (TR) grills/grates.

B. Open Hearth Steel Grating:
1. Where used, bars of open hearth steel grating shall be produced especially for prison use by the open hearth or electric furnace processes and of a chemical composition within the limits adopted to the specifications of the American Society of Testing Materials for open hearth bars and shapes. Steel produced by the Bessemer process shall not be acceptable unless the phosphorous and sulphur contents are certified to be within the allowable maximums prescribed for open hearth steel in ASTM Specifications A-36.
2. Open hearth horizontal framing bars shall be connected to vertical framing bars by angle knee and horizontal interlocking bars shall be tenoned and riveted to vertical framing bars.
3. Open hearth steel grating shall be of the following construction:
   a. Not less than 7/8" diameter double ribbed round bars, spaced not over 4" o.c., unless shown otherwise, passing through and inter-locking at each intersection with 3/8" x 2-1/4" horizontal flat bars spaced not over 12" o.c.
   b. Vertical framing bars shall be 3/8" x 2-1/4" flat bars.

C. Tool Resisting Steel Grating:
1. Where used, tool resisting steel grating shall be made especially for jail or prison work. The grating shall be composed of tool resisting double ribbed round homogeneous vertical bars of the same chemical analysis throughout and open hearth steel flat horizontal and framing bars. Steel rail bars, or self hardening bars will not be acceptable and shall not be used either in concrete floors, walls, ceilings or in any tool resisting grating. The component parts of all compound or laminated tool resisting bars shall be thoroughly welded together, rolled to shape and otherwise specially processed in such manner as will insure uniform distribution of the soft iron or low carbon content steel body and the tool resisting special high carbon or high carbon chrome steel components

throughout their length. All tool resisting bars shall be heat treated in furnaces especially designed for the purpose or with electrical induction heating equipment, all provided with accurate automatic temperature control, making possible uniform heat treatment and hardening to effect high resistant to cutting tools. Heat reducing-medium shall be carefully maintained to minimize oxidation and scaling. Temperatures of the quenching mediums shall be controlled and maintained within a range that will insure uniform hardness. Tool resisting steel will conform to ASTM specification A-627 (double ribbed bars).

2. Open hearth horizontal framing bars shall be connected to vertical framing bars by angle knees and horizontal interlocking bars shall be tenoned and riveted to vertical framing bars.
3. Tool resisting steel grating shall be of the following construction:
   a. Not less than 7/8" diameter vertical double ribbed round bars spaced not over 4" o.c., passing through and interlocking at each intersection with 3/8" x 2-1/4" horizontal open hearth flat bars spaced not over 12" o.c., as shown on plans.
   a. Vertical framing bars shall be 3/8" x 2-1/4" flat bars.

PART 3 - EXECUTION

3.01 GENERAL REQUIREMENTS

A. Examine and inspect all surfaces, anchors, and grounds that are to receive materials, fixtures, assemblies, and equipment specified herein. Check location, "rough in", and field dimensions prior to beginning work. Report all unsatisfactory conditions in writing to the Design-Builder and Owner's Project Manager.

B. Do not begin installation until all unsatisfactory conditions have been corrected.

C. Inspection and preparation of security glass:
   1. Manufacturer's Labels: Labels showing glass manufacturer's identity, type thickness, and quality will be required for each piece. Labels must remain on glass until it has been inspected.
   2. Sizes: The sizes of glass shall be indicated in the architectural drawings but should be considered approximate only. Due to the lead times required for the manufacture of security glass, the Detention System Contracting firm shall determine the actual (accurate) glass size from the final approved security hollow metal and/or security window shop drawings. The Detention System Contracting firm shall coordinate the glass and correct dimension tolerances required for the rabbet width and depth, which shall include glass thickness, shims, setting blocks, tapes and gaskets. Upon receipt of hollow metal frames the Project Manager shall insure in writing, that frames have not been modified in any way that might alter the glass size.
   3. Inspect all frames and surrounds to be glazed under this Section and notify Design-Builder of any conditions which affect satisfactory installation of glass. Do not proceed with glazing until such conditions have been corrected.
   4. This contractor shall see that all rivet, screw, bolt heads, welding fillets and other projections are removed from glazing rabbets to provide the specified clearances; that all corners and fabrication intersections are sealed and frames are watertight; that rabbets art sills weep to outside and all rabbets are of sufficient depth and width.
   5. Only experienced mechanics shall be employed and glazing shall be executed according to the highest standards.
   6. Prior to glazing, all dirt, grease, oil, or other coatings, shall be removed from surfaces to be in contact with glazing material. All such surfaces shall be dry and free from dust.

D. Installation of Security Glass:
   1. General: Glass types shall be installed at locations shown on the drawings and according to the manufacturer's maximum size limitations, and placement of setting blocks.
      a. Glazing to be done in strict accordance with the glazing manufacturer's instructions.
      b. No attempt shall be made to change the size of the laminated glass units after they leave the factory. All glass must be clean cut and all laminated to protect edges against possible contact with sealant or harmful materials.
      c. Nipping to remove flares or to reduce oversized dimensions of any type of glass will not be permitted.
      d. The DSCF shall be responsible for receiving, unloading, and distribution of the glass. The Design-Builder shall provide a secure area for temporary storage of the security glass. Before installation, the Design-Builder shall provide on each floor or each building, an adequately sized locked room for storage of the security glass.

3.02 INSTALLATION OF ALL SECURITY PRODUCTS

A. General: Install all fixtures, materials, assemblies, and equipment as specified herein and as indicated on the drawings in strict accordance with manufacturer's recommendations and instructions.
   1. Installation, coordination, and final adjustment of control, consoles, locking devices, locksets, and door position switches, shall be by the DSCF.

B. The Electrical Contractor shall be responsible for furnishing and installing the raceways and conductors as related to this section and described below:
   1. All conduit complete with pull string, standard backboxes and installation of all special backboxes furnished by the Electrical Contractor shall be installed in accordance with division 16 and the latest edition of the N.E.C. and other applicable codes.
   2. Conductors and air tubes to interconnect locks, push button switches, locking devices, emergency release cabinets, operators, control consoles, raceways, conduits, backboxes and all other electric hardware furnished under Division 16.
   3. Conductors to control system components and systems generating signals to be displayed at control consoles as well as all other electrical and electronic equipment furnished under this under Division 16.

C. The Electrical Contractor shall be responsible for the following:
   1. All electrical power and hookup of power to factory installed terminal blocks and power outlets including cut off switches and all other electrical equipment incidental to supply power. Power that is conditioned and transient protected shall be provided for the control consoles, CCTV cameras, locks, lights, CCTV monitors, amplifiers, receptacles, gates, and other items as specified and/or shown on drawings.

D. The DSCF shall be responsible for the installation and final adjustments of the following items:
   1. Security Hollow Metal Doors.
   2. Finish Hardware for Security Doors and Standard Hollow Metal Doors.
   3. Security Furniture.
   4. Security Glass.
   5. Security Windows.
   6. Alarms, detectors, intercoms, CCTV, fire alarm, U.P.S. systems and associated control wiring.

E. The Design-Builder shall be responsible for the installation, coordination, and final adjustment of the following:
   1. Security grilles

2. Security Hollow Metal Frames
3. Security Windows-Steel Subframes.
4. Embedded Items
5. Access Panel Frames and Doors
6. Control Wiring for Smoke Fans and Dampers
7. Additionally, the Design-Builder shall provide adequate power at all necessary locations to accommodate the installation and testing of all security equipment and components. The Design-Builder shall also take measures necessary to assure the DSCF/ESS the continuous availability of work spaces within the facility. The Design-Builder shall ensure that all equipment rooms and control rooms are complete and are environmentally controlled, prior to starting the electronic control panel and equipment installation.

F. Shop Drawing Coordination
1. The electrical circuits for each and every locking system shall be tested by the security hardware manufacturer and shall be certified as having compatible voltage, protection against overload and duty cycle capability consistent with the operation and installation.
2. In the event of hardware manufacturing changes which occur after approval of shop drawings or wiring diagrams which require any additional costs to the project, such additional costs shall be borne by the security hardware manufacturer.
3. The security hardware manufacturers shall review and approve all hollow metal door and frame shop drawings for proper acceptance of the security hardware. If modification must be made to the doors and frame during construction for proper hardware operation, such additional costs shall be borne by the security hardware manufacturer.
4. The security hardware manufacturer shall check and sign off that frames are installed within the tolerances outlined in Section 11190 - 3.03 B, Security Hollow Metal Installation and Tolerances, before installation occurs. The list should be sent to the Design-Builder and Owner's Project Manager.

3.03 FIELD QUALITY CONTROL

A. Upon direction of the Owner's Project Manager, the Design-Builder shall destroy a randomly selected security hollow metal door. Should examination disclose door construction at variance with the details specified, the door manufacturer shall, upon direction of the Owner's Project Manager, replace all doors shipped to the project, as of the date of inspection, with doors constructed in conformance with project specifications. Under conditions of nonconformity, the door manufacturer shall pay for the destroyed door and related labor. Should examinations prove the door was constructed in conformance with the specifications, the Owner will pay to replace the destroyed door and related labor.

B. Security Hollow Metal Frame Installation and Tolerances:
1. Installation:
   a. The Design-Builder shall install all security hollow metal frames in position true and plumb, aligned and braced securely until permanent anchors are set. Install all frames as defined with Door and Hardware Institute Manual, copyright 1977 with +1/16" tolerances for frame squareness, plumpness, alignment and twist.
   b. The DSCF shall check the frame to insure that it is within the specified tolerances. If it is not, the DSCF will advise the Design-Builder in writing and will not continue installation until the frame has been brought to within tolerance.
2. Edge Clearances shall be as follows:
   a. Between doors and frames, at head and jambs: 1/8"
   b. At door sills where no threshold is used: 3/8"
   c. At door sills where threshold is used: 3/4" max above finished floor.
   d. Between edges of pairs of doors: 1/8"

END OF SECTION

SECTION 11192

SECURITY GLAZING

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes Security Glazing and Accessories for the following:
   1. Exterior windows.
   2. Interior windows.
   3. Exterior doors.
   4. Interior doors.
   5. All required applications.

1.02 PERFORMANCE REQUIREMENTS

A. Exterior glazing: Provide glazing assemblies which will withstand normal conditions without failure, loss of weather tightness, or deterioration.

1.03 QUALITY ASSURANCE

A. Insulating Unit Warranty.

B. Weather tight Warranty.

C. Standard for Sealed Insulating Glass Units: ASTM E 774.

D. Certified Safety Glazing: Provide Category II products which comply with 16 CFR 1201 and ANSI Z97.1.

E. Security Glazing Performance: Provide test reports showing compliance with tests specified for specific glazing types.

F. Sealant Substrate Tests: Have manufacturer of sealant test glazing materials, glass, and substrates for proper adhesion and compatibility.

G. Mock-up: Construct full-size mock-up, matching unit sizes, materials, and installation methods to be used for this project.

H. Preinstallation Meeting.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Protect products in accordance with manufacturers' recommendations. Avoid damage to glass edges, prevent damage due to temperature changes, sunlight, and moisture.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

Subject to compliance with requirements, security glazing shall be manufactured by one of the following:

A. Wire Glass, Tempered Glass, Laminated Safety Glass:
   1. Viracon, Owatonna, MN
   2. Globe Amerada Glass Co., Elk Grove Village, Il
   3. Falconer Glass Industries, Falconer, NY
   4. Norshield, Montgomery, AL
   5. Globe Amerada Glass Co., Elk Grove Village, Il. (laminated safety glass)
   6. Sully North America, Trumbauersville, PA

7. Ashahi (wire glass manufacturer)
8. Pilkington Glass (wire glass manufacturer)

B. Laminated Composition Sheets:
1. Insulgard Corporation, Marietta, GA
2. G.E., Cranford, NJ
3. Norshield, Montgomery, AL
4. Viracon, Owatonna, MN
5. Globe Amerada Glass Co., Elk Grove Village, Il.
6. Sully North America, Trumbauersville, PA
7. GE Polymershapes-Insulgard
8. Old Castle – Laminated Glass Corporation

C. Monolithic Polycarbonate and Laminated Polycarbonate:
1. Insulgard Corporation, Marietta, GA
2. Plasticraft, Denver, CO
3. Safeguard Security, San Antonio, TX
4. G.E. (Marguard), Cranford, NJ
5. Norshield, Montgomery, AL
6. Viracon, Owatonnna, MN
7. Sheffiels Plastics, Sheffiel, MA
8. Globe Amerada Glass Co., Elk Grove Village, Il.
9. Sully North America, Trumbauersville, PA
10. GE Polymershapes-Insulgard
11. Sheffield Plastics

2.02 BASIC GLASS PRODUCTS

A. Glass: Quality q3, unless otherwise indicated.
1. Fully tempered: ASTM C 1048, Kind FT, Type 1.

B. Polycarbonate Sheet: Rigid, flat polycarbonate sheet.
1. Flammability: Less than 1 inch in accordance with ASTM D 635.
2. UV- and mar-resistant coating. Apply to all surfaces exposed to air.

2.03 GLASS TYPES

A. General: Prepare Door and Window Schedules on Drawings. Select products to comply with performance requirements indicated, in accordance with the manufacturer's recommendations.
1. 1/2” thick clear monolithic polycarbonate sheet; similar to and equal to GE Lexan MR10.
2. 3/8” thick full tempered clear, condition A (uncoated surfaces), Type 1 (transparent flat glass), class 1 (clear quality Q3 glazing select) glass sheet.
3. 1/4” thick wire, condition A (uncoated surfaces), Type II, class 1 (clear quality Q3 glazing select) glass sheet. Wire pattern shall be Misco.
4. 20 min. Fire-Rated Security glazing; similar and equal to Insulgard IC-GCP916WW -Diamond pattern.

2.04 INSTALLATION MATERIALS

A. Glazing Blocks: Neoprene, EPDM, or silicone.
1. Setting blocks: 80 to 90 Shore A hardness.
2. Spacers: As required to provide space and edge clearances recommended by FGMA.

B. Glazing Sealants:
1. General: Comply with recommendation of sealant and glass manufacturers for selection of glazing sealants which have performance characteristics suitable for applications indicated and conditions at time of installation. Glaze with sealant at all locations. Glazing tape is not acceptable.
2. Compatibility: Select sealants with proven compatibility with surfaces contacted in the installation and under service condition indicated. Comply with Section 07900 - Caulking and Sealants.

PART 3 - EXECUTION

3.01 INSTALLATION - GENERAL

A. Comply with recommendations for installation contained in the FGMA "Glazing Manual" and "Sealant Manual."

B. Protect glazing from edge damage during handling and installation.

3.02 GLAZING IN FRAMES

A. Permanently adhere setting and edge blocks to frame.

B. Applied Stops: Fasten as indicated, after glazing has been set in frame.

C. Sealants:
1. Use continuous spacers.
2. Use primer where required.
3. Tool sealant.

D. Sealant Tape: Install tape continuously.

E. Compression Gaskets: Secure gaskets so they will not work out under normal movement.

3.03 PROTECTION AND CLEANING

A. Immediately after installing glazing in frames, apply warning tape or bands across opening without touching anything.

B. Cover exposed polycarbonate surfaces with heavy paper secured with tape, without touching glazing.

C. Protect glazing during subsequent construction operations. Clean off excess sealants as work progresses.

D. Replace glazing that is damaged.

E. Wash both sides of glazing and clean polycarbonate surfaces using manufacturer's recommended procedures.

END OF SECTION

SECTION 11197

SECURITY ACCESS DOORS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Security access doors and frames for installation shall be provided where required for access to concealed mechanical, plumbing and electrical devices above ceilings and in walls to ensure access for adjustment, maintenance or monitoring or/ required by building, mechanical or electrical codes.
      a) Standard security access doors and frames.
      b) Fire-rated security access door assemblies.
      c) Stainless steel security access doors and frames.

1.02 QUALITY ASSURANCE

A. Obtain access doors for entire Project from a single manufacturer.

B. Provide fire-rated doors listed in Underwriters Laboratories, Inc. "Building Materials Directory". Units shall bear UL label.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Acceptable Manufacturers:
   1. Bar-Co. Inc.
   2. Cesco Products.
   3. Milcor, Inc.
   4. Nystrom, Inc.
   5. Norshield, Montgomery, AL

2.02 MATERIALS AND FABRICATION

A. General: Provide each access door assembly manufactured as an integral unit complete with all parts.

B. Steel access doors and frames: Fabricate units or continuous welded steel construction unless otherwise indicated. Grind welds smooth and flush with adjacent surfaces.

C. Fabricate from 16 gauge steel. Frames shall be perforated with gypsum board bead.

D. Flush panel doors: Fabricate using not less than 14 gauge steel sheet with concealed spring hinges or continuous piano hinge set to open 175 degrees. Units shall be primed with manufacturer's standard primer.

E. Locking devices: Provide key cylinder lock for door security. Door shall fit tightly and flush with frame when closed and locked.

F. Security torx screw fasteners shall be tapped into every corner of the access door to prevent tampering.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Comply with manufacturer's written instructions for installation. Coordinate with work of other sections.

B. Adjust and Clean:
   1. Adjust hardware and panels for correct operation.
   2. Remove and replace warped, bowed or damaged units.

END OF SECTION

SECTION 11400

FOOD SERVICE EQUIPMENT

PART 1 - GENERAL

A. A complete food service installation shall be designed by a food service planning consultant who specializes in the design of kitchens for detention and correctional institutions. The Consultant's company shall have a minimum of five years demonstrated experience in the design of such food service installations. The proposed food service consultant shall be acceptable to the Owner.

B. The food service consultant shall provide a complete design with rough-in drawings, equipment layouts, fabrtication details, technical specifications and all other documents and information required for a complete installation.

C. The food service installation shall be planned to serve initially 160 inmates plus staff three full meals daily, with the capability of serving up to 300 inmates and staff three meals daily. Increased meal preparation capacity shall be achieved by means of adding more equipment internally.

D. Refer to the Pre-Architectural Program for additional criteria and requirements for the food service component.

E. The food service design shall meet all requirements of local and state health departments and other jurisdictions having review and approval authority.

PART 2 - PRODUCTS

A. Food service equipment for the central kitchen, related food service areas and housing unit dayroom beverage stations/counters (if applicable) shall be selected and provided by a food service equipment contractor.

PART 3 - EXECUTION

A. Provide installation services in full accordance with the Food Service Consultant's drawings and other documents. Insure compliance with all regulations of health department and other jurisdictions having authority.

END OF SECTION